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09/899,899	07/05/2001	Olivier L. Jerphagnon	CALIP003	3593

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EXAMINER
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AMARI, ALESSANDRO V

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/899,899

Applicant(s)

JERPHAGNON ET AL.

Examiner

Alessandro V. Amari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 2-7, 14, 15, 22-36, 38-40, 42, 44, 47, 51, 53 and 55-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8-13, 16-20, 21, 37, 41, 43, 45, 46, 52, 54 is/are rejected.
- 7) ☒ Claim(s) 48-50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I in Paper No. 6 is acknowledged. The traversal is on the ground(s) that all the claims are directed to an optical switch, only a single search is required for all these claims and no undue burden would be placed on the Examiner if all the claims were examined together. This is not found persuasive because in order to overcome the restriction that the subcombinations useable together are distinct from each other, the Applicant must provide an argument, supported by the facts, that one of the subcombinations evidenced by the Examiner as showing utility other than in the disclosed combination cannot be accomplished or is not reasonable (see MPEP 806.05(d)). Since no argument to this effect was provided, the requirement is still deemed proper and is therefore made FINAL. Claims 1, 8-13, 16-20, 21, 37, 41, 43, 45, 46, 48-50, 52 and 54 are being examined in this Office Action. Claims 2-7, 14, 15, 22-36, 38-40, 42, 44, 47, 51, 53 and 55-63 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 1, 8-11, 13, 37, 43, 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Duguay U.S. Patent 5,671,304.

In regard to claims 1, 37 and 52, Duguay discloses (see Figures 2 and 3) an apparatus or cross-connect or method comprising a plurality of input fibers (12), each of the plurality of input fibers configured to carry a plurality of lambda signals; a first stack of substrates (20), each of the substrates coupled to one of the input fibers and configured to demultiplex the lambda signals carried on the input fiber by wavelength respectively as described in column 5, lines 41-67 and column 6, lines 1-5; a plurality of output fibers (14); and a switching matrix (A, B, C) configured to switch the demultiplexed lambda signals from the first stack of substrates to the plurality of output fibers.

Regarding claim 8, Duguay discloses that each of the substrates of the first stack is a monolithic substrate as described in column 5, lines 7-12.

Regarding claim 9, Duguay discloses that each of the substrates of the first stack comprise waveguide paths of unequal lengths as shown in Figure 3 and as described in column 5, lines 41-67 and column 6, lines 1-5.

Regarding claim 10, Duguay discloses that the waveguide paths of unequal lengths are interconnected with star couplers as shown in Figure 3 and as described in column 5, lines 41-67 and column 6, lines 1-5.

Regarding claim 11, Duguay discloses that the waveguide paths and the star couplers form a substantially symmetrical optical diffraction grating as shown in Figure

3.

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Regarding claim 13, Duguay discloses that each of the substrates of the first stack demultiplex the lambda signals using interferometry as described in column 6, lines 6-16.

Regarding claim 43, Duguay discloses that each of the provided substrates of the first stack are array waveguide gratings as shown in Figure 3 and as described in column 5, lines 41-67 and column 6, lines 1-5.

Regarding claim 45, Duguay discloses providing a plurality of the optical switches to form a scalable cross-connect as described in column 2, lines 53-64, column 3, lines 34-37.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16-20, 41, 46 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duguay U.S. Patent 5,671,304 in view of Paniccia et al U.S. Patent 6, 504,965.

Regarding claims 16-20, 41, 46 and 54, Duguay teaches the invention as set forth above but does not teach an alignment plate mounted onto the first stack of substrates, the alignment plate configured to align the demultiplexed lambda signals into parallel collated beams and a lens array mounted onto the alignment plate and that the alignment plate further comprises a plurality of detectors, the detectors configured to

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measure the power of the demultiplexed lambda signals tapped from the plurality of substrates of the first stack respectively and that the alignment plate further comprises a plurality of regions arranged at a predetermined distance with respect to the plurality of detectors, the regions further configured to be concentric with the demultiplexed lambda signals when the substrates of the first stack and the alignment plate are in alignment and that the plurality of detectors are photodiodes.

Regarding claims 16, 41 and 54, Paniccia et al teaches (see Figure 1) an alignment plate mounted onto the first stack of substrates, the alignment plate configured to align the demultiplexed lambda signals into parallel collated beams as described in column 3, lines 26-33 and column 8, lines 58-67.

Regarding claim 17, Paniccia et al teaches a lens array (396) mounted onto the alignment plate as shown in Figure 3.

Regarding claim 18, Paniccia et al teaches (see Figure 1) that the alignment plate further comprises a plurality of detectors (158, 160, 162, 164, 166, 168A, 168B, 168C and 168D) the detectors configured to measure the power of the demultiplexed lambda signals tapped from the plurality of substrates of the first stack respectively as described in column 3, lines 26-33 and column 7, lines 20-27.

Regarding claim 19, Paniccia et al discloses (see Figures 1 and 3) that the alignment plate further comprises a plurality of regions arranged at a predetermined distance with respect to the plurality of detectors, the regions further configured to be concentric with the demultiplexed lambda signals when the substrates of the first stack

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and the alignment plate are in alignment as shown in Figure 3 and as described in column 3, lines 26-33 and column 7, lines 20-27.

Regarding claim 20, Paniccia et al teaches that the plurality of detectors are photodiodes as shown in Figure 1.

In regard to claim 46, Paniccia et al teaches aligning the first plurality of substrates in the first stack by positioning each of the first plurality of substrates to a position where a plurality of detectors on an alignment plate measure the maximum signal power of the demultiplexed output signals from each of the first plurality of substrates respectively; and adhering the first plurality of substrates and the alignment plate together when alignment of the first plurality of substrates of the first stack is achieved as shown in Figure 1 and as described in column 3, lines 26-33 and column 7, lines 20-27.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the alignment plate as taught by Paniccia et al in the apparatus of Duguay in order to provide for accurate alignment of the optical beams between various components.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duguay U.S. Patent 5,671,304 in view of Solgaard et al U.S. Patent 6,097,859.

Regarding claim 12, Duguay teaches the invention as set forth above but does not teach that each of the substrates of the first stack demultiplex the lambda signals by wavelength using a wavelength dependent optical index.

Solgaard et al does teach that each of the substrates of the first stack demultiplex the lambda signals by wavelength using a wavelength dependent optical index as described in column 2, lines 54-56.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the wavelength dependent optical index to demultiplex the optical signals as taught by Solgaard et al in the apparatus of Duguay in order to achieve a more compact demultiplexing device.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duguay U.S. Patent 5,671,304 in view of Paniccia et al U.S. Patent 6,504,965.

Regarding claim 21, Duguay in view of Paniccia et al teaches the invention as set forth above except for the lens array being integrated into the alignment plate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the lens array into the alignment plate, since it has been held that making in one piece an article, which has formerly been formed in multiple pieces, involves only routine skill in the art. One would have been motivated to integrate the lens array into the alignment plate in order to provide for a more compact arrangement for the alignment plate. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)

***Allowable Subject Matter***

8. Claims 48-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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9. Claim 48 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "the alignment of the first plurality of substrates is performed one substrate at a time" as set forth in the claimed combination. Claim 49 is also allowable due to its dependency on claim 48.

Claim 50 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "the plurality of detectors on the alignment plate measure the maximum signal power from the demultiplexed output signals from taps configured on the first plurality of substrates respectively" as set forth in the claimed combination.

The prior art of record, Duguay in view of Paniccia et al teaches an apparatus comprising, a plurality of input fibers, a first stack of substrates coupled to the input fibers and configured to demultiplex signals carried on the input fiber by wavelength, a plurality of output fibers and a switching matrix configured to switch the demultiplexed signals from the first stack of substrates to the plurality of output fibers. Duguay and Paniccia et al further teach an alignment plate configured to align the demultiplexed signals into parallel collated beams. However, neither Duguay or Paniccia, alone or in combination teach the method wherein the alignment of the first plurality of substrates is performed one substrate at a time or wherein the plurality of detectors on the alignment plate measure the maximum signal power from the demultiplexed output signals from taps configured on the first plurality of substrates respectively.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (703)


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306-0533. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ava *AM*  
June 9, 2003

  
MARK A. ROBINSON  
PRIMARY EXAMINER